



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-25513; Directorate Identifier 99-NE-61-AD]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede airworthiness directive (AD) 2006-18-14 that applies to all Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 650-15 and Tay 651-54 turbofan engines. AD 2006-18-14 requires calculating and re-establishing the cyclic life of stage 1 high-pressure turbine (HPT) disks, part number (P/N) JR32013 and P/N JR33838, and stage 1 low-pressure turbine (LPT) disk, P/N JR32318A. This proposed AD would require re-calculating the cyclic life, and would impose a reduced cyclic life, of stage 1 HPT disk, P/N JR32013. We are proposing this AD to prevent failure of stage 1 HPT disks, P/N JR32013 and P/N JR33838, and stage 1 LPT disk, P/N JR32318A, which could result in an uncontained engine failure and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.

- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany; phone: 49-0-33-7086-1064; fax: 49-0-33-7086-3276. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2006-25513; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the mandatory continuing airworthiness information, regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Philip Haberlen, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7770; fax: 781-238-7199; email: philip.haberlen@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2006-25513; Directorate Identifier 99-NE-61-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On August 30, 2006, we issued AD 2006-18-14, Amendment 39-14753 (71 FR 52988, September 8, 2006), for all RRD Tay 650-15 and Tay 651-54 turbofan engines. AD 2006-18-14 requires calculating and re-establishing the cyclic life of stage 1 HPT disks, P/N JR32013 and P/N JR33838, and stage 1 LPT disk, P/N JR32318A, that have been exposed to different engine flight plan profiles. AD 2006-18-14 also requires

removing from service, using a drawdown schedule, those stage 1 HPT disks and stage 1 LPT disks operated under Tay 650-15 engine flight plan profiles A, B, C, or D; or operated under the Tay 651-54 engine datum flight profile, at reduced cyclic life limits. AD 2006-18-14 resulted from RRD updating their low-cycle-fatigue analysis for stage 1 HPT disks and stage 1 LPT disks and reducing their cyclic life limits. We issued AD 2006-18-14 to prevent cracks leading to turbine disk failure, which could result in an uncontained engine failure and damage to the airplane.

Actions Since AD 2006-18-14 Was Issued

Since we issued AD 2006-18-14, RRD reviewed the cyclic life limit of parts affected by AD 2006-18-14; RRD concluded that the stage 1 HPT disk, P/N JR32013, requires further cyclic life limit reduction. RRD did not further reduce the cyclic life limit of stage 1 HPT disk, P/N JR33838, or stage 1 LPT disk, P/N JR32318A. Accordingly, the cyclic life limits of stage 1 HPT disk, P/N JR33838, and stage 1 LPT disk, P/N JR32318A, as imposed by AD 2006-18-14, remain unchanged in this proposed AD.

Since AD 2006-18-14 was issued, the European Aviation Safety Agency (EASA) issued AD 2015-0056, dated March 31, 2015 to reduce the cyclic life limits of the stage 1 HPT disk, P/N JR32013.

Related Service Information under 1 CFR Part 51

RRD has issued Alert Non-Modification Service Bulletin (NMSB) No. TAY-72-A1821, Revision 1 dated March 26, 2015. The Alert NMSB describes procedures to recalculate the consumed cyclic life of stage 1 HPT disk, P/N JR32013. This service information is reasonably available because the interested parties have access to it

through their normal course of business or by the means identified in the ADDRESSES section of this NPRM.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require re-calculating and re-establishing the cyclic life of stage 1 HPT disk, P/N JR32013. This proposed AD would also require removing from service those stage 1 HPT disks, P/N JR32013, depending on engine flight plan profiles and engine models, at certain reduced cyclic life limits, using a drawdown schedule.

Costs of Compliance

We estimate that this proposed AD affects 25 engines installed on airplanes of U.S. registry. We also estimate that it would take about 0.5 hours per engine to comply with this proposed AD. The average labor rate is \$85 per hour. The pro-rated life limit reduction cost is about \$23,053 per engine. Based on these figures, we estimate the cost of this proposed AD on U.S. operators to be \$577,388.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2006-18-14, Amendment 39-14753 (71 FR 52988, September 8, 2006) (“AD 2006-18-14”), and adding the following new AD:

Rolls-Royce Deutschland Ltd & Co KG (formerly Rolls-Royce plc): Docket

No. FAA-2006-25513; Directorate Identifier 99-NE-61-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2006-18-14.

(c) Applicability

This AD applies to Rolls-Royce Deutschland Ltd & Co (RRD) KG Tay 650-15 and Tay 651-54 turbofan engines with stage 1 high-pressure turbine (HPT) disks, part number (P/N) JR32013 or P/N JR33838, or stage 1 low-pressure turbine (LPT) disks, P/N JR32318A, installed.

(d) Unsafe Condition

This AD was prompted by RRD reducing the cyclic life limit for certain stage 1 HPT disks, P/N JR32013. We are issuing this AD to prevent cracks leading to turbine disk failure, which could result in an uncontained engine failure and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) Re-calculate the cyclic life of stage 1 HPT disks, P/N JR32013, as follows:

(i) If a stage 1 HPT disk, P/N JR32013, was ever operated under a different engine flight plan profile than the engine flight plan profile operated on the last flight, and/or was ever installed and operated in a different engine model, do the following:

(A) Within 30 days after the effective date of this AD, re-calculate the cyclic life for each stage 1 HPT disk, P/N JR32013, using paragraphs 3.A.(1)(b)(1) through 3.A.(1)(b)(4) of the Accomplishment Instructions of RRD Alert Non-Modification Service Bulletin (NMSB) No. TAY-72-A1821, Revision 1, dated March 26, 2015.

(B) Reserved.

(ii) If you change your flight plan profile and/or install a stage 1 HPT disk, P/N JR32013 or P/N JR33838, or stage 1 LPT disk, P/N JR32318A, into a different engine model after the effective date of this AD, re-calculate the cyclic life of the part(s) as described in paragraph (e)(1)(i)(A) of this AD within 30 days of making the change.

(2) For engines with a stage 1 HPT disk, P/N JR32013, installed, do the following:

(i) Remove from service any stage 1 HPT disk, P/N JR32013, within 100 flight cycles after the effective date of this AD or before exceeding the new, reduced cyclic life limits specified in paragraphs (e)(2)(i)(A) through (e)(2)(i)(E) of this AD, whichever occurs later, as follows:

(A) For RRD Tay 650-15 engines operated under engine flight plan profile A, the new, reduced cyclic life limit is 18,900 flight cycles-since-new (FCSN).

(B) For RRD Tay 650-15 engines operated under engine flight plan profile B, the new, reduced cyclic life limit is 15,500 FCSN.

(C) For RRD Tay 650-15 engines operated under engine flight plan profile C, the new, reduced cyclic life limit is 11,500 FCSN.

(D) For RRD Tay 650-15 engines operated under engine flight plan profile D, the new, reduced cyclic life limit is 9,300 FCSN.

(E) For RRD Tay 651-54 engines operated under any engine flight plan profile, the new, reduced cyclic life limit is 10,873 FCSN.

(ii) Reserved.

(3) For engines with a stage 1 HPT disk, P/N JR33838, or stage 1 LPT disk, P/N JR32318A, installed, do the following:

(i) Remove from service any stage 1 HPT disk, P/N JR33838, or stage 1 LPT disk, P/N JR32318A, before exceeding the cyclic life limits specified in paragraphs (e)(3)(i)(A) through (e)(3)(i)(E) of this AD, as follows:

(A) For RRD Tay 650-15 engines operated under engine flight plan profile A, the cyclic life limit for stage 1 HPT disk, P/N JR33838, and stage 1 LPT disk, P/N JR32318A, is 23,000 FCSN.

(B) For RRD Tay 650-15 engines operated under engine flight plan profile B, the cyclic life limit for stage 1 HPT disk, P/N JR33838, is 20,000 FCSN; and the cyclic life limit for stage 1 LPT disk, P/N JR32318A, is 21,000 FCSN.

(C) For RRD Tay 650-15 engines operated under engine flight plan profile C, the cyclic life limit for stage 1 HPT disk, P/N JR33838, is 14,700 FCSN; and the cyclic life limit for stage 1 LPT disk, P/N JR32318A, is 18,000 FCSN.

(D) For RRD Tay 650-15 engines operated under engine flight plan profile D, the cyclic life limit for stage 1 HPT disk, P/N JR33838, is 11,000 FCSN; and the cyclic life limit for stage 1 LPT disk, P/N JR32318A, is 14,250 FCSN.

(E) For RRD Tay 651-54 engines operated under any engine flight plan profile, the cyclic life limit for stage 1 HPT disk, P/N JR33838, is 12,600 FCSN and the cyclic life limit for stage 1 LPT disk, P/N JR32318A, is 20,000 FCSN.

(ii) Reserved.

(f) Installation Prohibition

After the effective date of this AD, do not install any part identified in paragraph (e) of this AD into any engine, or return any engine to service with any part identified in paragraph (e) of this AD, installed, if the part exceeds the cyclic life limit specified in paragraphs (e)(2) and (e)(3) of this AD.

(g) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(h) Related Information

(1) For more information about this AD, contact Philip Haberlen, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7770; fax: 781-238-7199; email: philip.haberlen@faa.gov.

(2) Refer to MCAI European Aviation Safety Agency, AD 2015-0056, dated March 31, 2015, for more information. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating it in Docket No. FAA-2006-25513.

(3) Rolls-Royce Deutschland Ltd & Co KG Alert Non-Modification Service Bulletin No. TAY-72-A1821, Revision 1, dated March 26, 2015 can be obtained from Rolls-Royce Deutschland Ltd & Co KG, using the contact information in paragraph (h)(4) of this AD.

(4) For service information identified in this AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany; phone: 49-0-33-7086-1064; fax: 49-0-33-7086-3276.

(5) You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on February 26, 2016.

Colleen M. D'Alessandro,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

